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09/752,297	12/29/2000	Scott R. Nelson	5181-30701/P4114	6652

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EXAMINER
WALLACE, SCOTT A

ART UNIT	PAPER NUMBER
2671	12

DATE MAILED: 12/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 November 2003*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,11,15-21 and 25* is/are rejected.

7)☒ Claim(s) *8-10,12-14,22-24 and 26-28* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

    a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *10* .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as
> set forth in section 102 of this title, if the differences between the subject matter sought to be
> patented and the prior art are such that the subject matter as a whole would have been obvious
> at the time the invention was made to a person having ordinary skill in the art to which said
> subject matter pertains. Patentability shall not be negatived by the manner in which the invention
> was made.

2.   Claims 1, 4, 15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al.,

U.S. Patent No. 5,903,279 in view of Ray et al., U.S. Patent No. 5,673,376.

3.   As per claim 1, Lee et al discloses a method for displaying lines on a display device (column 2

lines 28-32), said method comprising: generating a plurality of sample positions (column 2 lines 28-40) in

a two-dimensional space (fig 5); determining a sample normal distance for each of the sample positions

with respect to a line in the two-dimensional space (fig 1 and column 1 lines 65-67 and column 2 lines 1-3

and 28-40); assigning sample values to said sample positions based on the sample normal distance of

each of said sample positions (column 1 lines 60-67 and column 2 lines 1-3); operating on one or more of

said sample values to determine a pixel value (column 1 lines 60-67); transmitting the pixel value to a

display device (column 2 lines 15-17). However, Lee et al does not disclose wherein the plurality of

sample positions corresponds to a pixel. This is disclosed in Ray et al in column 3 lines 58-62. It would

have been obvious to one of ordinary skill in the art at the time the invention was made to use plural

sample values per pixel because this helps prevent aliasing.

4.   As per claims 4 and 18, Lee et al discloses wherein said operating on said plurality of sample

values comprises: spatially filtering said plurality of sample values (column 1 lines 29-43).

5.   As per claim 15, Lee et al discloses a method for displaying lines on a display device (column 2

lines 28-32), said method comprising: a sample buffer (column 2 lines 10-20); a rendering unit configured

to a) generate a plurality of sample positions (column 2 lines 28-40) in a two-dimensional space (fig 5);

determining a sample normal distance for each of the sample positions with respect to a line in the two-

dimensional space (fig 1 and column 1 lines 65-67 and column 2 lines 1-3 and 28-40); assigning sample

values to said sample positions based on the sample normal distance of each of said sample positions

(column 1 lines 60-67 and column 2 lines 1-3); store said sample values in said sample buffer (column 2

lines 10-20); a pixel calculation unit configured to read one or more of said sample values from the

sample buffer (column 2 lines 10-20), operate on one or more of said sample values to determine a pixel

value (column 1 lines 60-67); transmitting the pixel value to a display device (column 2 lines 15-17).

However, Lee et al does not disclose wherein the plurality of sample positions corresponds to a pixel.

This is disclosed in Ray et al in column 3 lines 58-62. It would have been obvious to one of ordinary skill

in the art at the time the invention was made to use plural sample values per pixel because this helps

prevent aliasing.

6.   Claims 2-3 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al

in view of Ray et al in further in view Law, U.S. Patent No. 6,133,901.

7.   As per claims 2 and 16, Lee et al does not specifically disclose wherein said sample values

comprise color values. However, this is disclosed in Law in the abstract. It would have been obvious to

one of ordinary skill in the art at the time the invention was made to use the color values of Law with the

sample values in Lee et al because Lee et al discloses finding the weighted intensity value and this

intensity could be done with color values or gray scale depending on the capability of the computer.

8.   As per claims 3 and 17, Lee et al does not specifically disclose wherein said sample values

comprise transparency values. However this is disclosed in Law in column 7 lines 6-20. It would have

been obvious to one of ordinary skill in the art at the time the invention was made to use the transparency

values of Law with the values of Lee et al because Lee et al discloses finding the weighted intensity value

and this intensity could be done with color values or gray scale or transparency values depending on the

capability of the computer.

9.   Claims 5-7, 11, 19-21, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et

al in view of Ray et al in further in view of Nakayama et al., U.S. Patent No. 5,487,142.

10.   As per claims 5 and 19, Lee et al does not specifically disclose wherein said determining said

sample normal distance for each of the sample positions with respect to said line comprises: computing a

vertical displacement between the sample position and the line; and multiplying the vertical displacement

by a slope correction factor. However, this is disclosed in Nakayama et al in column 5 lines 40-50. It

would have been obvious to one of ordinary skill in the art at the time the invention was made to use the

slope correction factor of Nakayama et al with the system of Lee et al because this would have made it

possible to draw a smooth straight line only having very small steps (column 6 lines 1-10).

11.   As per claims 6 and 20, Lee et al does not specifically disclose wherein said determining said

sample normal distance for each of the sample positions with respect said line comprises: computing a

horizontal displacement between the sample position and the line; and multiplying the horizontal

displacement by a slope correction factor. However, this is disclosed in Nakayama et al in column 5 lines

40-50. It would have been obvious to one of ordinary skill in the art at the time the invention was made to

use the slope correction factor of Nakayama et al with the system of Lee et al because this would have

made it possible to draw a smooth straight line only having very small steps (column 6 lines 1-10).

12.   As per claims 7 and 21, Lee et al discloses wherein said assigning the plurality of sample values

to said plurality of sample positions based on the sample normal distance of each sample positions

(column 1 lines 60-67 and column 2 lines 1-3). However, Lee et al does not specifically disclose determining a window value according to a window function for each of said sample positions based on the corresponding sample normal distance; computing said sample value for each of said sample positions based on the corresponding window value. This disclosed in Nakayama et al in column 4 lines 20-67. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the window function (occupying ratio calculating means) of Nakayama et al with the system of Lee et al because this would have made it possible to draw a smooth straight line having a high quality (column 4 lines 25-30).

13.   As per claims 11 and 25, Nakayama discloses further comprising receiving user input determining said ACF (column 5 lines 10-25).

Allowable Subject Matter

14.   Claims 8-10, 12-14, 22-24, 26-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Scott Wallace** whose telephone number is **703-605-5163**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Mark Zimmerman**, can be reached at 703-305-9798.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA,

Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be

directed to the Technology Center 2600 Customer Service Office whose telephone number is

(703) 306-0377.

MARK ZIMMERMAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600